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ABSTRACT

The major purpose of this study was to produce a research method for use in studying how the inherent qualities of college courses taken during the teacher education years can be used to predict how practicing elementary teachers may perceive their later teaching proficiencies. The 101 teachers who participated in the study had collectively enrolled in 636 courses. The study methodology required the qualities associated with the 636 courses taken by the teachers to be defined and quantified. The course qualities were defined in terms of their humanistic-ethical, creative-aesthetic, scientific-quantitative, and vocational-utilitarian quality characteristics. The instrument developed for the survey consisted of 16 statements in sets associated with the four teaching functions of: (1) content/knowledge; (2) people relationships; (3) methods/procedures; and (4) professional orientation. One of the major findings was that the most disparaging correlations found were from the effects of an overwhelmingly large number of course hours and grade point average quality components accumulated by the teachers in the vocational-utilitarian course quality area. The findings are analyzed and discussed from the viewpoint of improvement of teacher education courses. Survey results are displayed on graphs and charts. (JD)

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Predicting Teacher Education Course Quality Effects on Elementary Teachers' Perceptions of Teaching Proficiencies

by
Merle P. Prater

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Predicting Teacher Education Course Quality Effects on Elementary Teachers' Perceptions of Teaching Proficiencies

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This paper presents the purpose, methodology, survey instruments, study dimensions, the more important findings, and some conclusions relative to an elementary teacher education research program carried out with the cooperation of Central Washington University, Ellensburg, Washington.[1]

Purpose

A major purpose of the study was to produce a research method for use in studying how the inherent qualities of college courses taken during the teacher education years can be used to predict how practicing elementary teachers may perceive their later teaching proficiencies.

Teacher Participant Criteria

One-hundred-one (101) elementary teachers consented to participate in the research who, as a group, had:

- concentrated in K-6 education;
- earned provisional State of Washington teaching certificates;
- been enrolled at Central Washington University for at least the junior/senior years;
- taken graduate work, if any, at Central Washington University;
- graduated within the required six consecutive quarters;
- taught a minimum of two but no longer than three equivalent[2] years:
- taught social studies, language arts, science and mathematics;
- given permission for use of transcript data.

The 101 teachers had collectively enrolled in 636 courses and had taken a total of 3480 student-courses.

Methodology

The study methodology required the qualities associated with the 636 courses taken by the teachers to be defined and quantified. The course qualities were defined in terms of their humanistic-ethical (H-E), creative-aesthetic (C-A), scientific-quantitative (S-Q), and vocational-utilitarian (V-U) quality characteristics[3] (see Appendix A for detailed definitions); and quantified through course quality emphasis factors provided by the instructors of the 636 courses taken (see Figure 1).

The course quality emphasis factors (which must add to unity) were used to convert transcript course hours and grades into "quality differentiated course hour (QDCRSHR)" components and "quality differentiated grade point average (QDGPA)" components which, when accumulated from all courses, were correlated with the teacher perceptions survey data. (Examples of two courses and their quality emphasis factors are shown in Figure 2. For a detailed flowchart of the entire research process, see Appendix B.)

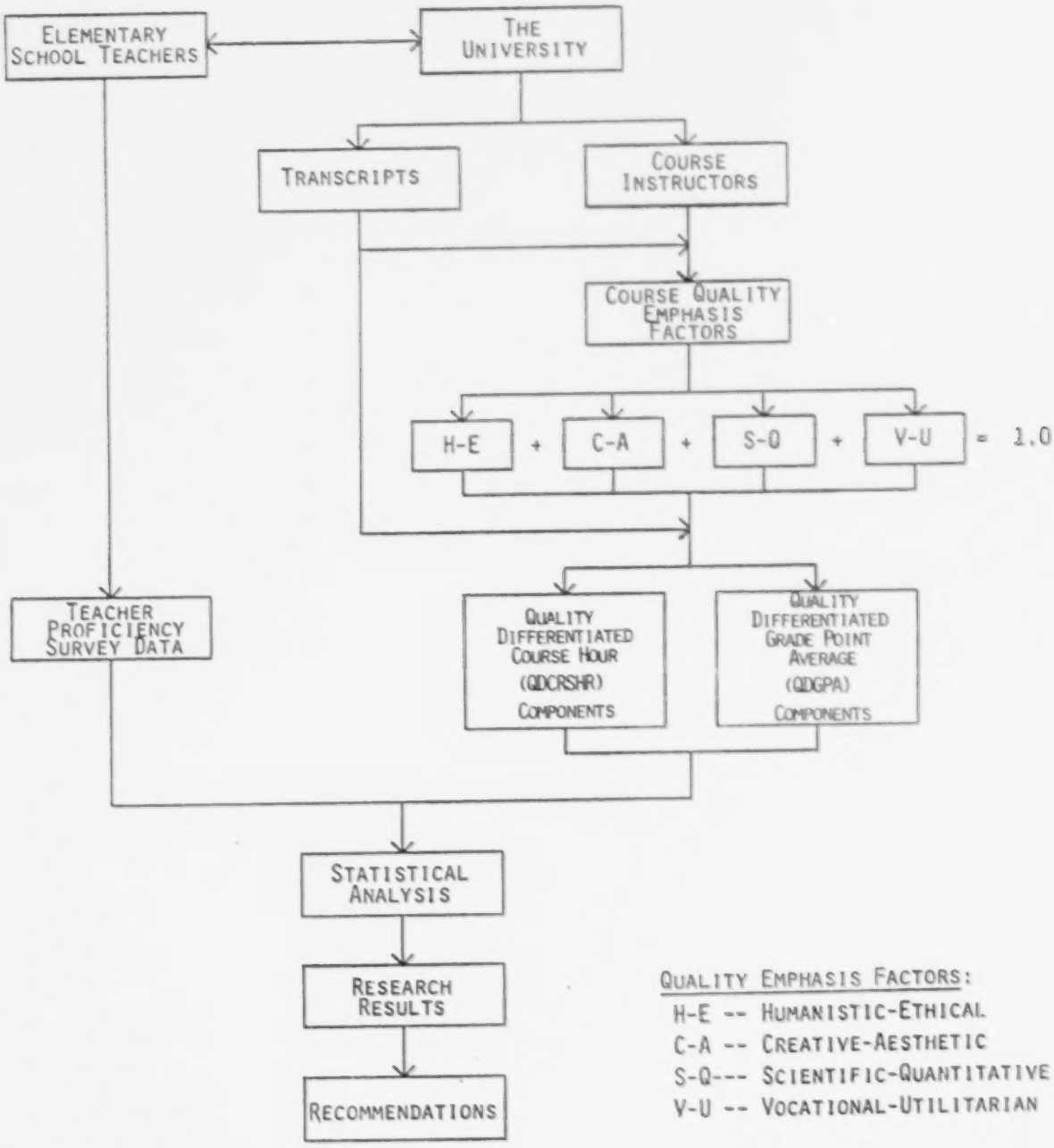
The Teacher Survey Instrument

The instrument developed for the teacher survey consists of 16 statements to which the teachers were asked to react (see Figure 3). The substance, or nature, of the statements are in sets associated with the four teaching functions of CONTENT/KNOWLEDGE, PEOPLE RELATIONSHIPS, METHODS/PROCEDURES, and PROFESSIONAL ORIENTATION (see Figure 4).

To measure teaching proficiency perceptions, the 16 statements associated with the teaching functions on the teacher survey instrument are linked by six point "likert" scales (from strongly disagree to strongly agree) to the four subjects that elementary teachers normally teach, i.e., social studies, language arts, science, and mathematics, for a total of 64 (16x4) quantified teaching perception reactions received from each teacher.[4]

FIGURE 1

HIGHLIGHTS OF THE STUDY DESIGN



QUALITY EMPHASIS FACTORS:

H-E -- HUMANISTIC-ETHICAL
C-A -- CREATIVE-AESTHETIC
S-Q--- SCIENTIFIC-QUANTITATIVE
V-U -- VOCATIONAL-UTILITARIAN

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FIGURE 2

-- EXAMPLES --

COURSE INSTRUCTORS' QUALITY EMPHASIS

FACTOR ENTRIES*

Course Code No.	Prog. Short Title	Course No.	Course Title	Year	Course Hours	COURSE QUALITY EMPHASIS FACTORS **			
						H-E 1	C-A 2	S-Q 3	V-U 4
31831100	ED	311	Tchng: Curr/Meth/Mat		5	0.2	0.2	0.0	0.6

Course Code No.	Prog. Short Title	Course No.	Course Title	Year	Course Hours	COURSE QUALITY EMPHASIS FACTORS **			
						H-E 1	C-A 2	S-Q 3	V-U 4
22023500	ENG	235	Studies/Folklore		5	0.5	0.5	0.0	0.0

* FROM CWU FACULTY WORK SHEETS

** H-E -- HUMANISTIC-ETHICAL
C-A -- CREATIVE-AESTHETIC
S-Q -- SCIENTIFIC-QUANTITATIVE
V-U -- VOCATIONAL-UTILITARIAN

FIGURE 3

REACTION STATEMENT RESPONSES

PLEASE CIRCLE THE NUMBER MOST NEARLY CORRESPONDING TO YOUR AGREEMENT OR DISAGREEMENT WITH EACH STATEMENT FOR EACH SUBJECT SHOWN.

USE THE FOLLOWING GUIDE.

DISAGREE			AGREE		
STRONGLY	MODERATELY	SLIGHTLY	SLIGHTLY	MODERATELY	STRONGLY
1	2	3	4	5	6

I FEEL THAT I AM PROFICIENT AS AN ELEMENTARY TEACHER IN THE COURSES SHOWN BECAUSE:	SOCIAL STUDIES	LANGUAGE ARTS	SCIENCE	MATHEMATICS
1. I HAVE A BASIC UNDERSTANDING OF THE ROLE OF THIS COURSE IN ELEMENTARY EDUCATION.....	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
2. IN INSERVICE CONFERENCES AND WORKSHOPS, I FAVOR THIS COURSE OVER OTHERS.....	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
3. I UNDERSTAND THE NATURE OF THIS COURSE AND THE PROCESS OF INQUIRY PECULIAR TO IT.....	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
4. I PARTICIPATE WHENEVER POSSIBLE IN FORMAL COURSES IN HIGHER EDUCATION RELATIVE TO THIS COURSE.....	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
5. I HAVE NO DIFFICULTIES WITH PARENTS REGARDING STUDENT PROBLEMS IN THIS COURSE.....	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
6. MY KNOWLEDGE OF THIS COURSE'S CONTENT IS ADEQUATE TO PREPARE GOOD STUDY UNITS.....	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
7. I CAN ADEQUATELY PERFORM ANY REQUIRED TECHNICAL FUNCTIONS REQUIRED BY THIS COURSE (I.E., MEDIA EQUIPMENT, COMPUTERS, SCIENCE EQUIPMENT, ETC.).....	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
8. MY METHODS OF TEACHING THIS COURSE FOSTER CREATIVE AND CRITICAL THINKING IN MY STUDENTS.....	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
9. I FEEL COMFORTABLE IN TALKING TO MY STUDENTS ON AN INDIVIDUAL BASIS RELATIVE TO THIS COURSE.....	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
10. I SELDOM WONDER ABOUT WHETHER I AM A GOOD TEACHER OF THIS COURSE.....	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
11. I AM ABLE TO INTEGRATE THE COMMON CONCEPTS OF THIS COURSE INTO THE OTHER COURSES I TEACH.....	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
12. I HAVE LITTLE DIFFICULTY IN IDENTIFYING STUDENT LEARNING PROBLEMS AND APPLYING REMEDIAL INSTRUCTION IN REGARD TO THIS COURSE.....	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
13. I WORK EFFECTIVELY WITH DISTRICT CURRICULUM SUPERVISORS, OTHER TEACHERS, AND MY PRINCIPAL IN REGARD TO THIS COURSE.....	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
14. I AM ACTIVELY ASSOCIATED WITH A PROFESSIONAL ORGANIZATION PERTAINING TO THE INTERESTS OF THIS COURSE.....	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
15. I FEEL CAPABLE IN DEVELOPING STRATEGIES FOR TEACHING THIS COURSE (INCLUDING PREPARING/EVALUATING INSTRUCTIONAL OBJECTIVES AND SELECTING INSTRUCTIONAL MATERIALS)....	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
16. I CONTINUE A HIGH INTEREST IN THIS COURSE BY READING BOOKS, JOURNALS, AND OTHER ARTICLES ABOUT IT.....	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6

Survey instrument to determine elementary teacher's perceptions of their teaching proficiencies

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FIGURE 4

SUBSTANCE OF TEACHER SURVEY STATEMENTS
RELATIVE TO
TEACHING FUNCTIONS

CONTENT/ KNOWLEDGE	PEOPLE RELATIONSHIPS	METHODS/ PROCEDURES	PROFESSIONAL ORIENTATION
1* CURRICULUM	5 PARENTS	7 TECHNICAL ABILITY	2 INSERVICE TRAINING
3 SUBJECT BACKGROUND	9 STUDENTS	8 INSTRUCTIONAL TECHNIQUES	4 CONTINUING EDUCATION
6 SUBJECT CONTENT	10 PEERS	12 IDENTIFYING REMEDIAL PROBLEMS	14 PROFESSIONAL ORGANIZATIONS
11 SUBJECT INTERRELA-TIONSHIPS	13 SELF	15 ADMINISTRATIVE PROCESSES	16 SELF-STUDY

* ASSOCIATED TEACHER SURVEY STATEMENT NUMBERS

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Statistical Analysis

From the totals of the accumulated quality components and the teacher reaction data, multiple regression[5] statistical analysis was employed to determine the factors with which to predict ($p < .05$) how future elementary teachers in the second/third year of teaching would most likely perceive their proficiencies in teaching social studies, language arts, science and mathematics.

Major Findings

Before discussing the results, it is pointed out that since there are many influences other than course qualities which enter into teachers' perceptions of their teaching proficiencies, obviously the findings of this research can only "point in a direction" toward why these particular teachers perceived their teaching proficiencies as they did. Consequently, this research is not presented as "the" solution independent of all other influencing factors. However, it is certainly hopeful, given the time, effort and money spent in the teacher education years, that the knowledge and experience gained from courses taken would be one of the more powerful influences contributing to why relatively inexperienced teachers would perceive their teaching proficiencies as they do.[6] To obtain more complete predictions, other sets of correlations would be needed from data asociated with other influences in teachers' backgrounds such as instilled from all other schooling, experiences and life situations.

As we shall see, the most disparaging correlations found were from the effects of an overwhelmingly large number of course hour and grade point average quality components accumulated by the teachers in the vocational-utilitarian (V-U) course quality area. From the total of 3480 student-courses taken in the teacher education years, the vocational-utilitarian (V-U) quality components proportionately comprised some 43% of the total while the remainder were divided betweeen the humanistic-ethicical (H-E) at 19%, creative-aesthetic (C-A) at 16%; scientific-quantitative (S-

Q) at 22% (see Figure 5a). Of the 2260 professional teaching/certification student-courses taken, the quality component breakdown is even more unbalanced toward the vocational-utilitarian (V-U), i.e., humanistic-ethical (H-E) at 19%, creative-aesthetic (C-A) at 13%, scientific-quantitative at 17%; and vocational-utilitarian (V-U) at 51% (see Figure 5b).

As shown by the "n's" on the flowchart[7] (Figure 6), it can be seen that many possible correlations did not exist for the four quality sets in respect to teaching functions, subjects taught, and the Grand Mean perceptions. However, as the encircled positive and negative directions of the correlations indicate, there is a trend in respect to where the positive and negative correlations were found. Twelve (12) of the 13 positive correlations were related to the humanistic-ethical (H-E) and creative-aesthetic (C-A) and scientific-quantitative (S-Q) course qualities while four of the five negative correlations were found in respect to scientific-quantitative (S-Q) and vocational-utilitarian (V-U) course qualities.

Results

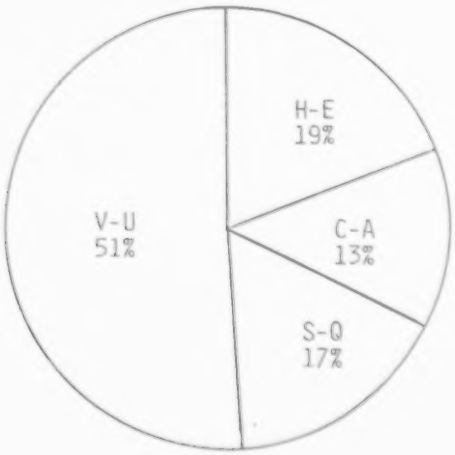
From the teacher education standpoint, it is important to observe the overriding negative and noncorrelation effects found in conjunction with 17 of the 18 relationships established by the accumulated vocational-utilitarian (V-U) quality components (43% of the total). The negative correlations were associated with the key CONTENT/KNOWLEDGE teaching function as well as teaching of social studies. Since the relationships in Figure 6 resulted from whatever was experienced by the teachers in accumulating the four sets of quality components, it is discouraging to note from the transcript and instructor furnished data that the bulk of the vocational-utilitarian (V-U) quality components resulted from professional teacher education and certification courses as well as vocational-utilitarian (V-U) quality component contributions from courses found in art, drama, leisure studies, music and PE -- many of which were taken as electives.[8] (See Appndix C for a department-by-department breakdown relative to inherent qualities of the courses actually taken.)

FIGURE 5A

COURSE QUALITY COMPONENT BREAKDOWN -- TOTAL 3480
STUDENT-COURSES TAKEN*

FIGURE 5B

COURSE QUALITY COMPONENT BREAKDOWN -- 2260
TEACHING/CERTIFICATION STUDENT-COURSES TAKEN*



H-E -- HUMANISTIC-ETHICAL
C-A -- CREATIVE-AESTHETIC
S-Q--- SCIENTIFIC-QUANTITATIVE
V-U -- VOCATIONAL-UTILITARIAN

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* JUNIOR/SENIOR/GRADUATE YEARS AT CENTRAL WASHINGTON UNIVERSITY

FIGURE 6

BIAS EFFECTS OF ELEMENTARY TEACHER EDUCATION COURSE QUALITIES
ON
PERCEPTIONS OF TEACHING PROFICIENCIES*

	Teaching Functions								Subjects Taught								Grand Mean	
	Content/ Knowledge		Relation-ships		Methods/ Procedures		Profes-sionalism		Social Studies		Language Arts		Science		Mathe-matics			
	CrsHr	GPA	CrsHr	GPA	CrsHr	GPA	CrsHr	GPA	CrsHr	GPA	CrsHr	GPA	CrsHr	GPA	CrsHr	GPA	CrsHr	GPA
Humanistic-Ethical	N	⊕	⊕	N	N	N	N	N	⊕	N	N	N	⊕	N	N	N	⊕	N
Creative-Aesthetic	N	⊕	⊕	⊕	N	N	N	N	⊕	N	N	N	⊖	N	N	N	N	N
Scientific-Quantitative	N	⊕	N	⊕	N	N	N	N	⊖	N	N	N	⊖	N	N	N	N	⊖
Vocational-Utilitarian	⊖	N	N	⊕	N	N	N	N	⊖	N	N	N	N	N	N	N	N	N

⊕ - Positive Bias
⊖ - Negative Bias
N - No particular bias
CrsHr - Bias in respect to Quality Differentiated Course Hours
GPA - Bias in respect to Quality Differentiated Grade Point Averages

$p < .05$

* Bias effects are shown through the "+" or "-" directions (or no particular direction -- "N") of the correlation coefficient as determined from stepwise multiple regression statistical analysis.

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However, from Figure 6, in contrast to the vocational-utilitarian (V-U) course quality effects, note that the humanistic-ethical (H-E) quality components (19% of the total), produced positive relationships with the CONTENT/KNOWLEDGE and RELATIONSHIP teaching functions as well as the teaching of social studies and science. An important positive correlation also was established between the humanistic-ethical (H-E) course quality components and the overall, or Grand Mean; the latter which is related to the teachers' perceptions of their teaching proficiencies across all teaching functions and courses taught. Therefore, from whatever was experienced in the teacher education years, the teachers evidentally perceived the humanistic-ethical (H-E) emphasis in their courses as helpful to their teaching roles even though far less emphasized in their professional teaching and certification courses.

The creative-aesthetic (C-A) quality components (16% of the total) positively affected the way teachers perceived their CONTENT/KNOWLEDGE and RELATIONSHIPS teaching functions and social studies teaching but were negative toward teaching science (which might be expected). In respect to the scientific-quantitative (S-Q) quality components (22% of the total), there were positive correlations in the CONTENT/ KNOWLEDGE, PEOPLE RELATIONSHIPS, and Grand Mean areas. (The negative correlation toward teaching social studies could well stem from the little commonality normally stressed between science and mathematics courses and social issues.) Paradoxically, the scientific-quantitative (S-Q) quality components did not produce a positive correlation with the teachers perceptions of their science teaching ability. (However, this might well mean nothing more than unfavorable teacher attitudes toward teaching science.)

Note that all seven correlations associated with the quality differentiated grade point averages were biased toward the positive. Based on the total of 18 correlations found, the seven in respect to the quality differentiated grade point average (GPA) components, however, would appear not as influential towards teachers' perceptions

as the 11 in respect to the accumulated quality differentiated course hour (Crshr) quality components.[9] I also would point out that 12 of the 13 total positive correlations were associated with the humanistic-ethical (H-E), creative-aesthetic (C-A), and the scientific-quantitative (S-Q) quality components while but only one was associated with the vocational-utilitarian (V-U). As might be expected, the positively correlated humanistic-ethical (H-E), creative-aesthetic (C-A) and the scientific-quantitative quality component sets were found to be more heavily represented from the humanities and liberal arts courses taken in the teacher education years.

Discussion/Recommendations

Since 1985, the findings of this study have contributed to a new and popular option in elementary teacher education at Central Washington University designated as PROGRAM I (see Appendices D and E) which, in effect, requires courses with greater degrees of humanistic-ethical (H-E), creative-aesthetic (C-A), and scientific-quantitative (S-Q) course emphasis. This is an interdisciplinary program of preparation for elementary teachers beginning in the freshman year which, in close cooperation with the School of Letters, Arts and Sciences, takes little for granted relative to the integration of the humanities and the liberal arts into elementary teachers' studies.

If such research could be replicated in other schools of teacher education, it would reasonably follow that the schools should produce, promote and require more courses with increased emphasis in the humanistic-ethical (H-E), creative-aesthetic (C-A) and (possibly with some review) the scientific-quantitative (S-Q) qualities. Following are recommendations to help correct this curriculular imbalance:

- develop an elementary teacher curriculum with more humanistic-ethical (H-E), creative-aesthetic (C-A), and scientific-quantitative (S-Q) quality emphasis;

- revise the professional teaching and certification courses to present more humanistic-ethical (H-E), creative-aesthetic (C-A), and scientific-quantitative (S-Q) quality emphasis;
- print course quality emphasis factors opposite catalog course descriptions;
- counsel elementary teacher students to take less electives (or other courses where there are choices) having large vocational-utilitarian (V-U) emphasis.

In conclusion, if after taking the indicated steps to effectively adjust the proportions of the course quality factors, negative correlations would still exist relative to vocational-utilitarian (V-U) quality components, other factors affecting the teacher education climate should be looked into. These problems might range from admission standards through to faculty morale, but at least indicators are present from which to start an investigation. Hopefully, it can be seen how such a process can give insights into curriculum analysis in respect to elementary teacher education.

Notes

[1] This research was based on the methodology and results from: Prater, M. P., Second and Third Year Elementary Teachers' Perceptions of Their Teaching Proficiencies as Related to Accumulated Quality Components of Their Course Hours and Grades in Teacher Education at Central Washington University (Doctoral dissertation, Gonzaga University, 1984). Dissertation Abstracts International, 1984, 45, 1033A. (University Microfilms No. 84-16263)

[2] The 101 teachers' unweighted teaching experience (for fulltime, substitute and aide) was 2.77 years (standard deviation = .94); weighted = 2.43 years (standard deviation = .79).

[3] The quality descriptions are those used for "substantive resources of human experience and scholarship," as originated by: Crary, R. W., Humanizing the School: Curriculum Development and Theory. New York: Knopf, 1969, pages 168-178. In addition "Pairwise Critical Difference" tests were performed on the H-E, C-A, S-Q and V-U quality terms and each found to be independent of the other verifying that their use is of a high order for defining the inherent qualities of college courses.

[4] High instrument reliability was obtained as determined two ways by the Cronbach-Alpha Coefficient Method with the coefficients ranging from .861-.894 when considering all courses taught with each teaching function; and from .870-919 when considering all teaching functions with each course taught. Validity was judged relative to how completely the statements represented the teaching situations which normally develop within K-6 teaching and was based upon similar representations from questionnaires developed and used by the National Study of School Evaluation, 1973 and 1981, and from R. Goldenberg's work, 1975 (ERIC Document Reproduction Services No. ED 131075) as well as counsel from other experienced educators.

[5] Stepwise multiple regression was used to examine the interactive relationships for each criterion (dependent) variable with the H-E, C-A, S-Q and V-U QDCRSHR and QDGPA component predictor (independent) variable contributions.

[6] In this study, only courses, course hours and grades for the junior, senior and graduate years were used because of the difficulty in obtaining transcripts from the large number of teachers, who as students, transferred into CWU at the beginning of their junior year. Undoubtedly, courses taken in their freshman and sophomore years would play some part in the teachers' perceptions of their teaching proficiencies. But due to the long time lapse effect and the fact that many students' had not decided upon their professions in the earlier years, it is doubtful that they would have applied the same rigor to the different areas of their coursework as would be applied to courses in their teacher education years.

[7] The positive and negative directions of the correlation coefficients are used rather than the actual correlation coefficient numbers in order to show the mental bias of the teachers in arriving at their perceptions of their teaching proficiencies for the "teaching functions" used and "subjects taught" as a result of their

accumulated quality components. Although statistically significant, most "proportions of variance (simple correlation coefficients squared)" correlations found were small, indicating that, percentagewise, other factors were also at play affecting each of the relationships. Thus, the magnitudes of the proportions of variance correlations would not be too meaningful in themselves.

[8] For further reference, representative* weighted average teaching emphasis factors for different CWU disciplinary areas were as follows:

	No. of Courses	H-E	C-A	S-Q	V U
Liberal Arts/Humanities	85	.37	.17	.24	.20
Science	27	.11	.09	.63	.18
Arts/Music/PE	162**	.15	.28	.20	.37
Education	306	.20	.14	.18	.48

* 580 of the 636 courses collectively taken were used in these averages.

** Many of these were one hour elective courses.

[9] Grades were not generally found to be the best basis on which to examine the teachers' teaching perspectives as the grades in the CWU School of Professional Studies, at the time the courses were taken, tended to be closely grouped on the high side in relation to, for example, grades given in the School of Letters Arts and Sciences.

APPENDIX A

Definitions of Course Qualities

humanistic-ethical (H-E)

humanistic: From "humanism"...devotion to the humanities: literary culture...a doctrine, attitude or way of life centered in human interests or values; especially: a philosophy that asserts the dignity and worth of man and his capacity for self-realization.

ethical: Conforming to accepted professional standards of conduct...synonym, see moral. From "ethic"...the principles of conduct governing an individual or a group.

creative-aesthetic (C-A)

creative: Marked by the ability or power to create: given to creating...having the quality of something created rather than imitated; imaginative....

aesthetic: Relative to, or dealing with aesthetics, or the beautiful...artistic...appreciative of, responsive to, or zealous about the beautiful.

scientific-quantitative (S-Q)

scientific: Of, relating to, or exhibiting the methods, or principles of science....From "science"...a department of systematized knowledge as an object of study (e.g., the science of theology)...knowledge covering general truths of the operation of general laws, especially as obtained and tested through scientific method....

quantitative: Of, relating to, or expressible in terms of quantity...of, relating to, or involving the measurement of quantity or amount.

vocational-utilitarian (V-U)

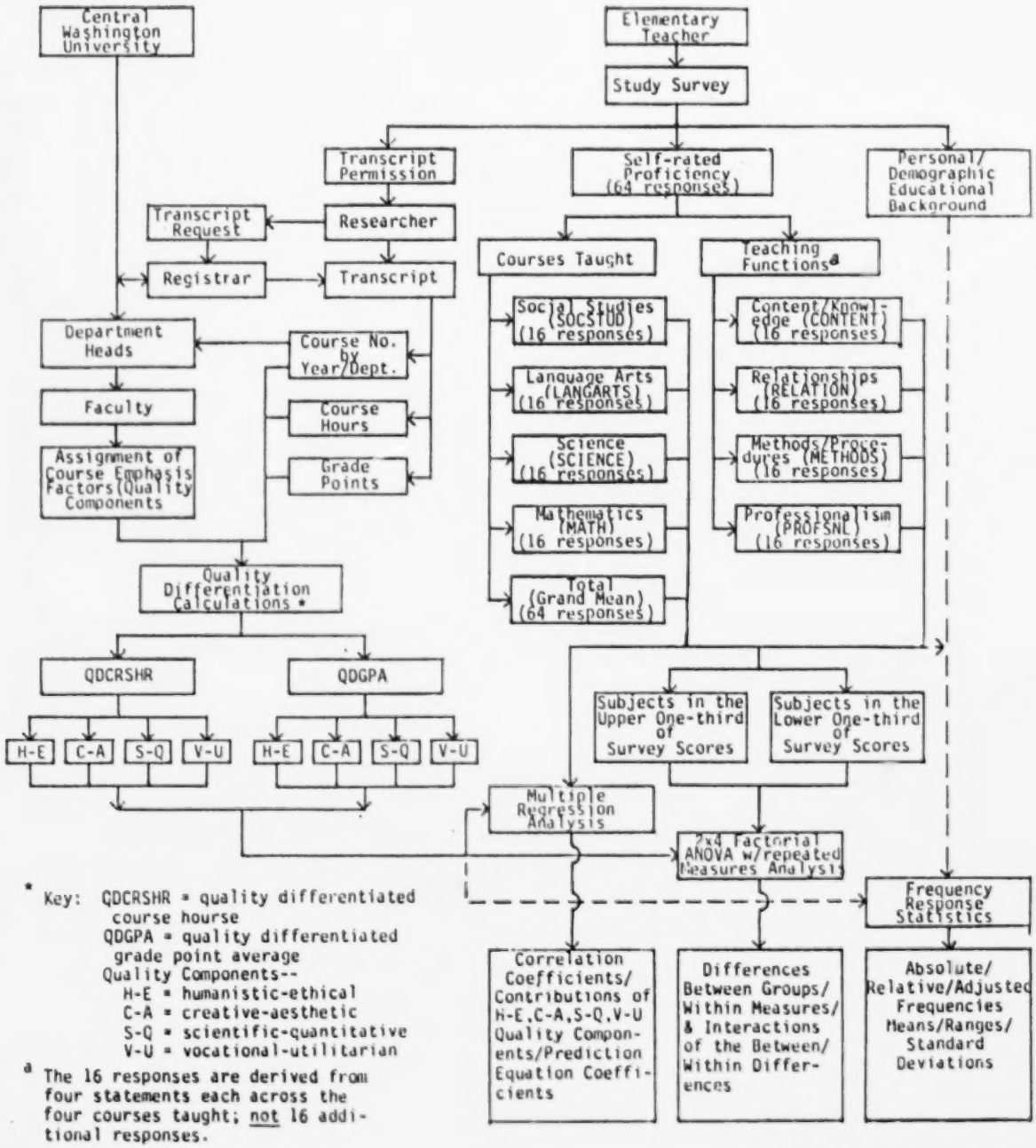
vocational: Of, relating to, or concerned with a vocation...of, relating to, or being in training in a skill or trade to be pursued as a career....

utilitarian: Of, or relating to, or advocating utilitarianism...of, relating to, or aiming at utility. From "utilitarianism"...a doctrine that the useful is the good and that the determining consideration of right conduct should be the usefullness of its consequences....

APPENDIX B

FLOWCHART OF STUDY DESIGN

ELEMENTARY LEVEL TEACHERS' PERCEPTIONS OF THEIR TEACHING PROFICIENCIES AS RELATED TO THE QUALITY COMPONENTS OF THIER COURSEWORK IN TEACHER EDUCATION AT CENTRAL WASHINGTON UNIVERSITY



* Key: QDCRSHR = quality differentiated course hourse
QDGPA = quality differentiated grade point average
Quality Components--
H-E = humanistic-ethical
C-A = creative-aesthetic
S-Q = scientific-quantitative
V-U = vocational-utilitarian

[a] The 16 responses are derived from four statements each across the four courses taught; not 16 additional responses.

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APPENDIX C

Course Quality Emphasis Factors - Central Washington University Teacher Study

Department Name		Number of Courses Affected	Total Student-Courses Taken	Mean Values of the Course Quality Emphasis Factors[c] for the Total Student-Courses Taken			
				H-E	C-A	S-Q	V-U
Accounting	ACCT	1	1	.00	.00	.00	1.00
[a] AFROTC (aerospace)	AFRO	1	1	.20	.10	.50	.20
Allied Health Science	AHSC	1	1	.20	.00	.80	.00
Anthropology	ANTH	7	13	.29	.13	.46	.13
Art	ART	14	75	.21	.23	.11	.46
Biological Sciences	BISC	13	16	.10	.05	.63	.22
Botony	BOT	2	2	.05	.05	.70	.20
[a] Business Education	BSED	2	5	.05	.10	.20	.65
Chemistry	CHEM	7	11	.11	.14	.67	.07
Communications	COM	5	24	.32	.14	.18	.36
Computer Science	CPSC	2	3	.15	.25	.30	.30
Drama	DR	11	34	.28	.54	.00	.18
[a] Early Childhood Ed	ECE	36	161	.16	.11	.31	.42
Economics	ECON	1	1	.30	.10	.50	.10
[a] Education	ED	179	1419	.21	.16	.14	.48
[a] Educational Media	EDMD	5	10	.10	.24	.12	.54
English	ENG	21	135	.20	.22	.11	.47
Environmental Studies	ENST	2	4	.20	.10	.45	.25
Ethnic Studies	ETS	6	8	.33	.40	.27	.00
French (language)	FR	1	2	.40	.00	.30	.30
Geography	GEOG	2	2	.85	.05	.05	.05
Geology	GEOL	7	13	.13	.10	.56	.21
German (language)	GERM	1	1	.30	.20	.10	.40
[a] Health Education	HED	9	12	.26	.14	.46	.14
History	HIST	7	50[b]	.46	.06	.49	.00
[a] Home Economics							
Consumer Managemnt	HOCM	2	9	.05	.00	.30	.65
Foods & Nutrition	HOFN	3	9	.03	.00	.63	.33
Family Studies	HOFS	6	11	.55	.00	.42	.03
Housing & Interiors	HOHI	1	1	.40	.30	.00	.30
Humanities	HUM	3	3	.50	.30	.20	.00
Latin American Studies	LAS	2	2	.10	.15	.15	.60
[a] Leisure Services (PE)	LES	14	15	.24	.08	.04	.64
[a] Library	LIB	1	1	.20	.00	.20	.60
Mathematics	MATH	11	45	.09	.21	.51	.19
Music	MUS	50	160	.21	.34	.13	.32
[a] Occupational Education	OCED	1	1	.00	.20	.20	.60
[a] Physical Education (PE)	PE	41	233	.03	.24	.36	.37
Fitness Activities	PEF	3	10	.00	.27	.27	.47
Indvl/Dual sports	PEID	2	2	.00	.05	.30	.65
Rhythms	PER	3	5	.00	.77	.00	.23
Team Sports	PETS	3	4	.00	.03	.73	.23
Philosophy	PHIL	4	6	.48	.13	.18	.23
Physics	PHYS	1	1	.20	.30	.50	.00
Political Science	POSC	3	3	.47	.00	.33	.20
Psychology	PSY	24	239	.32	.10	.30	.28
[a] Science Education	SCED	4	77	.00	.18	.28	.55
Sociology	SOC	12	21	.71	.20	.08	.02
Social Science	SOSC	1	68	.10	.30	.20	.40
Spanish (language)	SPAN	8	11	.29	.21	.18	.33
[a] Special Education	SPED	67	542	.16	.07	.15	.61
Speech Pathology & Audiology	SP&A	3	3	.30	.03	.37	.30
[a] Technology & Industrial Education	TIE	1	1	.00	.00	.50	.50
Totals		636	3480				
Grand Means							
All Student-Courses Taken				.19	.16	.22	.43
Professional Studies (Teacher Education Division) Courses			(2260)	.19	.13	.17	.51

[a] School of Professional Studies Courses (Major Teacher Education Division)

[b] 44 of the 50 student-courses taken were in Northwest U. S. History

[c] H-E -- humanistic ethical; C-A -- creative-aesthetic; S-Q -- scientific-quantitative
V-U -- vocational-utilitarian

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1984; 1988

Preparation Requirements for Elementary School Level

Students preparing to teach at the elementary school level must complete one of the four programs listed below.

Endorsement for student teaching at the elementary level requires completion of 75 per cent of an elementary program which must include ED 308, 309, 323, and 420.

Program I

Pursue a four-year interdisciplinary program of preparation outlined below which fulfills the requirements for graduation. Students electing this program must complete state certification requirements regarding a major area of study in the continuing certificate program. This program is not intended, nor appropriate, for transfer students from Washington community colleges holding an Associate of Arts degree.

General Education (Basic and Breadth Requirements)

Literature and Language

ENG 105 OR Humanities 175	5
ENG 432	3
COM 110	3
ENG 101, 102, 301	9
ENG 320	5

Natural Sciences*

BISC 211	2
BISC 212	4
BISC 213	4
CHEM 105	5
PHYS 105	5

Mathematics*

MATH 164.1	5
MATH 250	4
MATH 425	3

Social Sciences

HIST 102, 103, or 144 OR POSC 310	5
Other social or behavioral sciences (ECON., SOC., GEOG., ANTH.)	10
HIST 301	3

Music

MUS 322*	2
Humanities	5
Select from the list of courses on p. 31 under II A.2. **	

Other

HED 101	3
PE 345	3
PE Activities	3

Total 89

Professional Education

Elementary School Subjects Preparation ED 308	3
ED 309	5
ED 420	4
ED 323	3
SOCS 420	3
MUS 326	3
ART 330	3
PE 334	3
SCED 322	3

Total 30

Teacher Certification Program (Options I, II, III)

ED 300 OR 300.1	4
ED 301 OR 392	3 or 5
PSY 314	4
PSY 315	4
ED 311	5
ED 316	3
ED 444	8
SPED 301	4
ED 442	16

One course from the following:

ED 431	3
ANTH 130	5
ETS 101	4
SOC 265	5

3 to 5

Total 48-52

Approved Electives

The remainder of the individual student's program will be determined with advice from designated elementary education program advisors 13

Total 180

* Indicates that all or certain sections will be restricted to students in Program I.

**

2. Other Arts and Humanities
   - ART 101, 235*, 336*, 337, 357*, 410*, 456*
   - CHIN 151, 152, 153, 251*, 252*, 253* (See special rule No. 2)
   - DR 107, 363.1*, 363.3
   - ENG 235, 240, 341*, 342*, 362
   - FR 151, 152, 153, 251*, 252*, 253* (see special rule No. 2)
   - GERM 151, 152, 153, 251*, 252*, 253* (see special rule No. 2)
   - JAPN 151, 152, 153, 251*, 252*, 253* (see special rule No. 2)
   - SPAN 151, 152, 153, 251*, 252*, 253* (see special rule No. 2)
   - HUM 101, 102, 103
   - MUS 101, 103, 144
   - PHIL 101, 115, 302, 305, 352*, 353*, 354*, 355, 359, 487
   - PE 161
   - RELS 101*, 201*, 301*, 351*, 353*

APPENDIX E

Central
Washington
University

Assistant Dean and Director
of Certification
School of Professional Studies
Ellensburg, Washington 98926
(509) 963-2661

October 7, 1986

Merle P. Prater, ED.D.
Founder/Principal
Integrative Educational Systems
1534 Meadowlane
Ames, IA 50010

Dear Dr. Prater:

On behalf of Central Washington University and the program in teacher education, I would like to express my appreciation for the study conducted by you of our graduates who are practicing teachers at the elementary level. Your study has the potential to contribute a new dimension to the evaluation of teaching and learning. Your approach in evaluating the value of humanistic/ethical, creative/aesthetic, scientific/quantitative, and vocational/utilitarian quality factors has shown the effects of teacher preparation coursework on classroom teaching practices.

It is my opinion that you did a service to the institution, as well as to the profession, by using students from Central Washington University in your study. Your professional approach and your method of study are to be complimented.

I wish you well in your endeavors in the future.

Sincerely,

Ronald M. Frye, Assistant Dean
and Director of Certification
School of Professional Studies

jlg